reous instead of chitinous, as it *is* in *Hydractinia calcarea*, then the identity in structure with *Parkeria* would be so far complete.

Thus, although *Parkeria* cannot be identified with *Caunopora*, there is still no reason whatever why it should not be indirectly connected through *Hydractinia* with *Stromatopora* by being a Hydroid, if I am right in assuming that the animal of the latter was of this nature ('Annals,' 1878, vol. ii. p. 304 &c.).

With reference to the examination of the microscopic section of *Stromatopora mamillata*, Fr. Schmidt (Rosen, "Ueber die Stromatoporen," p. 71 &c., Taf. viii.), I have only to repeat what Nicholson and Murie, in their excellent memoir, have already stated, viz. that the skeleton of *Stromatopora* is "composed of non-spicular, granular, calcareous matter" (Linn. Soc. Journ. Zool. 1878, vol. xiv. p. 241).

Selecting a rolled portion, from the "Parson and Clerk" rocks at Teignmouth, of the species above mentioned, in which the so-called "hexactinellid structure" is sharply defined, I thought, as I had lately been successful in bringing out the spicules of the fossilized Calcispongiæ of the Coral Rag from Faringdon, that I might be equally successful in doing so with *Stromatopora* under similar circumstances, if there were any present; but although the slice was reduced almost to transparency, the skeletal fibre of the *Stromatopora* throughout never presented any thing but a granular composition, the minute grains of which contrasted strongly with the clear rhomboid crystalline calcspar of the intervening spaces, without the most remote trace of any kind of sponge-spicule in any part.

XLI.—*Contributions towards a General History of the Marine Polyzoa.* By the Rev. Thomas Hincks, B.A., F.R.S.

[Continued from vol. xi. p. 202.]

[Plates XIII. & XIV.]

XII. POLYZOA FROM INDIA (coast of Burmah).

A small gathering of Polyzoa from an island in the Mergui Archipelago, off the coast of Burmah, obtained by Dr. J. Anderson, F.R.S., Superintendent of the Indian Museum, Calcutta, has been placed in my hands for examination by

my friend Mr. H. J. Carter. It consists of fourteen species, of which four are probably undescribed; the rest are well-known forms, but they have a definite interest as coming from a new locality, and one which has hitherto, so far as I know, been little explored.

The following is the list of species :—

Suborder CHEILOSTOMATA.

Family **Cellulariidæ.**

SCRUPOCELLARIA, Van Beneden.

Scrupocellaria diadema, Busk.

Range. Queensland.

Family **Bicellariidæ.**

BEANIA, Johnston.

Beania mirabilis, Johnston.

On shell.

Range. Scandinavia, Great Britain, Adriatic.

Family **Membraniporidæ.**

MEMBRANIPORA, De Blainville.

Membranipora favus, n. sp. (Pl. XIII. fig. 2.)

Zoœcia oval, or hexagonal, or suborbicular (presenting many irregularities both in form and arrangement), of considerable depth, closely packed together, surrounded by a narrow brown line, which forms a kind of keel on the top of the cell-wall; inner surface of the margin granular; area occupying the whole front of the cell, closed in by a delicate membrane; numerous small cells of various shapes (sometimes quadrate, with an orbicular area) interspersed amongst the larger ones. *Avicularia* none.

Zoarium forming a rather thick crust, and (especially in the absence of the membranous front wall) closely resembling a honeycomb.

The species is without striking features. The dwarf cells, which are present in large numbers, are, perhaps, the most notable peculiarity.

Membranipora marginella, n. sp. (Pl. XIII. fig. 1.)

Zoœcia rather small, quincuncially arranged, ovate or pyriform, sometimes pointed below, with a rather thick, unarmed, minutely granular margin; aperture occupying about two thirds of the front and closed in by membrane, contracted above and expanded and rounded below; a small oval *avicularium*, elevated above and sloping downwards, borne on the margin of the zoœcia, usually placed on the side, near the top. Occasionally cells with a very large oral operculum of a dark horn-colour, occupying nearly half the area, and enclosed by a thin raised border (? avicularian or reproductive).

Family **Steganoporellidæ.**

Steganoporella, Smitt.

Steganoporella magnilabris, Busk.

Range. Abrolhos Islet (south tropical Atlantic), Algoa Bay, Bass's Straits, Florida.

Smitt places this genus amongst the Microporidæ, and I have given it the same position in my 'History of the British Marine Polyzoa.' But I am now inclined to agree with Dr. J. Jullien * so far as to regard the dithalamic condition of the zoœcium which distinguishes it as entitling it to rank in a separate *family* group. It is only right, however, that the name of this group should be taken from Smitt's genus *Steganoporella*, which is founded on the division of the zoœcium into an upper and lower chamber by the interposition of a calcareous lamina beneath the membranous front wall.

I am unable to follow Dr. Jullien in his proposed distribution of the Cheilostomata into two principal groups, characterized by the presence or absence of this "double ectocyst." It seems to me that he assigns a significance to this structural peculiarity to which it is by no means entitled. There is room, however, for a fuller investigation of its history and meaning.

Smittipora, J. Jullien.

Smittipora abyssicola, Smitt.

Range. Cuba, Florida, Singapore or Philippines.

* See his interesting paper entitled "Note sur une nouvelle division des Bryozoaires Cheilostomiens," Bull. de la Soc. Zool. de France, t. vi. (1881).

There seem to be two generic types at least* included in the group of the Steganoporellidæ, one of them represented by *S. magnilabris* and the forms which agree with it in the structure of the zoœcium, the other by such forms as the present. For the latter I have adopted (provisionally) Jullien's name *Smittipora*, though I am not prepared to accept his diagnosis of the genus in all points, and should be disposed to make it much more comprehensive than he has done. The genus *Steganoporella* (as I propose to limit it) is distinguished by the tubular passage leading from the inner chamber towards the external orifice and the corresponding modification of the internal orifice ("*opesia*" of Jullien), which is a simple opening in the calcareous lamina communicating directly with the inner chamber in *Smittipora* and kindred forms †.

I at one time referred the present species to *Setosella*, mihi, but the British species (*S. vulnerata*) for which this genus was founded does not possess the dithalamic cell.

The specimens of *S. abyssicola* from Burmah are crustaceous in habit.

Family **Microporellidæ**.

Microporella, Hincks.

Microporella violacea, Johnston, form *plagiopora*, Busk. (Pl. XIII. fig. 3.)

Range. Off Tortugas, Florida; France (south-west): English Coralline and Red Crag, Italian Pliocene.

Zoœcia large, ovate, very irregularly placed, punctured or areolated round the margin; orifice (primary) arched above, lower margin straight; peristome often much raised, giving a tubular character to the orifice; pore subcentral, simple, round; *avicularium* originating a little below the orifice, bent towards one side of it, and extending obliquely to the margin; mandible slender and finely pointed, curved at the extremity.

The Burmese specimens agree in all essential particulars with Busk's Crag species. The only peculiarities are the very irregular arrangement of the zoœcia and the elevated tubular peristome which occurs on many of the cells. I see no reason for regarding *M. plagiopora* as any thing more than a slightly modified form of *M. violacea*.

* There are probably more, but I confine my attention at present to the two noted above.

† See 'Annals' for Feb. 1882, "Contributions towards a General History of the Marine Polyzoa."—IX., pl. v. figs. 8, 9.

Microporella Fuegensis, Busk.

Range. Tierra del Fuego.

A small erect and branched specimen of this species occurs. The suboral pore presents some peculiarities. It is placed *immediately* below the rim of the orifice in front, and is only found in the adult cell. In the marginal zoœcia the orifice is suborbicular and the peristome not elevated; but in a more advanced stage the peristome rises considerably round the back and sides of the orifice, but not in front, the result being that a sinus is formed here. In a still more advanced stage the *margin* of the side walls of the peristome is extended across the upper part of this sinus, forming a narrow rim, and converting the open fissure into a circular pore, which communicates directly with the interior of the tubular peristome. It is evident that this is a very different structure from the ordinary pore of the *Microporellæ*, as it occurs in *M. ciliata* and *M. Malusii*, where it opens into the interior of the cell itself, and must be placed in a very different category.

Family **Myriozoidæ** (part), Smitt.

Schizoporella, Hincks.

Schizoporella biaperta, Michelin.

The single specimen which occurs is crustaceous in habit and referable to the form *divergens* of Smitt. It is furnished with large spatulate avicularia as well as the small circular form so characteristic of the species; the walls of the cell are smooth and white. The oœcium is very unlike that figured by Smitt for his *Hippothoa* (*Schizoporella*) *biaperta*; and this dissimilarity, in conjunction with the difference in the shape of the orifice, may prove that he was right in regarding the form *divergens* as a species. The ovicell in Dr. Anderson's specimen (which is a very typical example of Smitt's *S. divergens*) is small, rounded, and thickly covered with raised punctures; the opening is closed by the oral operculum of the cell.

Family **Escharidæ** (part), Smitt.

Lepralia, Johnston (part).

Lepralia robusta, n. sp. (Pl. XIII. fig. 4.)

Zoœcia very large, ovate, quincuncial, flattish, separated by a rather deep furrow, which is occupied by a line of large

punctures; surface uneven, rather coarsely granulose, usually a small depression (? pore) in the centre; orifice large, much taller than wide, arched and expanded above, somewhat contracted below, constricted a short distance above the inferior margin, which curves outwards; on each side of the orifice (or sometimes on one side only) a much elongated subspatulate *avicularium*, which originates some way below the orifice and slants obliquely upwards to a little above the top of it; mandible long, blunt and slightly expanded at the extremity, and directed upwards. *Oœcium* rounded, somewhat prominent, moderate in size, surface roughened.

A fine characteristic member of the genus, of which the size of the cells and the elongate avicularium are the striking features.

Porella, Gray.

Porella malleolus, n. sp. (Pl. XIII. fig. 5.)

Zoœcia rectangular, disposed in linear series, depressed, separated by delicate raised lines; surface covered with small punctures and nodulous ridges; a line of larger foramina round the sides; orifice arched and expanded above, much contracted below, the margin about the centre projecting inward on each side, lower lip slightly curved (nearly straight); within it an *avicularium* with a hammer-shaped mandible. Occasionally an *avicularium* at one side, which takes its origin some way down the cell and slopes upward to the top of the orifice; mandible elongate, slightly expanded at the base, slender above it, and pointed at the extremity, directed upwards. *Oœcium* (?).

Zoarium incrusting, whitish, of very delicate material.

The hammer-shaped mandible of the avicularium is a curious peculiarity, and, when elevated and standing erect within the lower lip, a very conspicuous one.

Smittia, Hincks.

Smittia trispinosa, Johnston, vars.

Range. Norway and Arctic seas, St. Lawrence, Mazatlan, North Pacific (Queen Charlotte Islands), Florida, Cape Horn, Aden, Adriatic, Britain, Bass's Straits.

Of this cosmopolitan species several varieties occur.

i. Peristome usually not elevated, and the marginal denticle very prominent (as in the Arctic form); sometimes the usual triangular *avicularium* present, but in some of the cells

replaced by an elongate form, originating below the orifice, and stretching up alongside it, with a long slender mandible (occasionally subspatulate) directed upwards. *Zoœcia* very irregularly placed and turned in all directions (Pl. XIII. figs. 7, 7*a*).

ii. *Zoœcia* very regularly disposed in lines. *Oœcium* thickly punctured, and with a penthouse-like projection in front; a triangular *avicularium* below the orifice.

iii. Form *bimucronata* (Pl. XIII. fig. 6). *Zoœcia* ovate, moderately convex, in linear series, radiating regularly from the central primary cell, separated by raised lines, punctured round the margin; surface reticulated, silvery; orifice subor-bicular, with a denticle on the lower lip; peristome (in the older cells) much elevated, thin, rising on each side into a prominent mucronate process, more or less produced in front, two spines on the upper lip; frequently on one side a gigantic *avicularium*, which originates alongside the peristome (near the top of the orifice), and extends straight downwards to the base of the cell; beak deeply channelled, broad at the base, and narrowing gradually towards the rounded extremity; an elongate subtriangular opening on the upper half of it; mandible long, very slender above the expanded basal portion, formed of very delicate membrane, directed downwards.

This variety also occurs in Australia (*J. B. Wilson*).

This has much the appearance of a distinct species; but it is connected by intermediate varieties with the typical form. We might expect the most widely distributed forms to be the most liable to variation; and this is certainly so in the case of the present species and *Microporella ciliata*, which are both eminently cosmopolitan.

Family **Celleporidæ**.

Cellepora, Fabricius (part).

Cellepora, ? n. sp.

A *Cellepora* occurs amongst Dr. Anderson's specimens which is identical with that described in my "Report on the Polyzoa of Queen Charlotte Islands" under the provisional name of *C. brunnea*.

Suborder Cyclostomata.

Family **Lichenoporidæ**.

Lichenopora, Defrance.

Lichenopora Novæ-Zealandiæ, Busk.

Range. New Zealand.

XIII. POLYZOA FROM VICTORIA AND WESTERN AUSTRALIA.

Under the present heading I shall continue the account of the Polyzoa dredged by Mr. J. Bracebridge Wilson off Port Phillip Heads, Victoria *. The collection which he has placed in my hands for examination is large and interesting, and I propose to give a complete list of the species contained in it which are not included in MacGillivray's 'Decades,' as well as descriptions of the new forms.

Group *Entoprocta*.

Family **Pedicellinidæ**.

Pedicellinopsis, n. gen.

Generic character.—Polypides cup-shaped, supported on chitinous tubes with a much enlarged base (consisting of an opaque white core, probably muscular, enveloped in a chitinous covering), by which they are attached to an erect tubular stem. *Zoarium* adherent by means of tubular root-fibres.

This is a truly arboresent *Pedicellina*, in which the soft parts, with the exception of the polypide itself, are clothed with a well-developed chitinous cœnœcium. The prolongation of the common flesh from which the polypide buds is protected by a chitinous tube, which is open above, and at the base is attached to a stem (also invested with a solid periderm). The root-fibres by which the colony is fixed in its place are sheathed in chitine. The polypide resembles closely that of such a form as *Pedicellina cernua*, and, so far as I can judge from an examination of spirit-specimens, presents no special peculiarities; it is not elevated above the orifice of the tube, but rests immediately upon it. The base of the tube is modified for the reception of a special structure; and if we may judge from the analogy of such a species as *Pedicellina gracilis*, Sars †, it must be muscular in character, and probably much more powerful and highly organized, as it is much larger than the kindred structure which occurs in the latter. If it be muscular it must secure free mobility to the polypide in conjunction with the protection afforded by the solid covering, and

* See 'Annals' for August 1882.

† In this form the mobility resides in the enlarged cylindrical base, the stem merely bending from the bottom, and the upper portions being chitinous and rigid.

a colony of *Pedicellinopsis* in health and vigour must present a strange scene of unrest and lively movement. We may hope that Mr. Wilson may yet have an opportunity of examining the species alive and studying its habits.

This localization of the muscular power seems to me to be fairly accounted a generic character; and I should be disposed to separate *Pedicellina gracilis* from the species in which it is diffused and in which there are no chitinous elements. At the same time it must be remembered that Leidy has described an American form very closely resembling *P. gracilis*, in which the basal expansion is present, while at the same time the whole stem is highly flexible and often becomes "more or less revolute" *. This is certainly a transition form. The distinctive characteristics of *Pedicellinopsis* are the arborescent form (which is by no means comparable with the mere ordinary variations in habit amongst the calcareous Cheilostomata), the specialized muscular structure, and (primarily) the highly developed periderm. In the localization of the muscular power this genus agrees with *Pedicellina gracilis* and with the remarkable Arctic genus *Barentsia*, mihi. In the possession of the first of the characters named it stands alone amongst the tribe; the last it shares (though with an important difference) with *Urnatella*, Leidy, a very interesting and beautiful form from the American fresh waters.

Pedicellinopsis fruticosa, n. sp. (Pl. XIV. figs. 3–3 *c*.)

Zoarium erect, consisting of a number of stout chitinous stems rising from a mat of tubular root-fibres, and sending off branches sparingly and irregularly, the whole forming a bushy shrub-like growth. *Polypides* borne on the summit of tall chitinous tubes, obliquely truncate at the top, and produced at the upper side into a sharp spinous projection, terminating below in large turbinate expansions with an opaque-white core and chitinous envelope, annulated throughout, which are attached to the stem by the inner side towards the base, and are thickly crowded upon it; body of the polypide cup-shaped, whitish, ventricose on one side and almost straight on the other; tentacles (probably) about twenty; the tubes traversed by four double lines, the spaces between them being occupied by a row of minute disks, which project from the surface. Height of the zoarium about one inch.

Loc. Port Phillip Heads (*J. B. Wilson*).

The tubes are densely crowded on the stems, which they

* See his paper entitled "*Urnatella gracilis*, a Freshwater Polyzoan," Journ. Ac. Nat. Sci. Philad. vol. ix.

clothe throughout their whole length; they are disposed somewhat irregularly in whorls. The basal enlargements are closely packed together, and almost conceal the surface of the stem. There is little branching; near the base the stem divides into two principal shoots, which give off laterals occasionally, but there is no definiteness in the plan of the ramification. The whole surface of the tubes is finely lineated longitudinally. A very marked character of the species is the obliquely truncate extremity of the tube, which is produced on one side into a strong spike-like projection. Towards the base the stem gives off a large number of chitinous fibres, which form a kind of adherent disk.

The whole structure recalls very forcibly one of the Tubularian Hydroids.

Group *Ectoprocta*.

Suborder Ctenostomata.

Family **Flustrellidæ**.

Flustrella, Gray.

Flustrella hispida, Fabricius, form *cylindrica*.
(Pl. XIV. figs. 1, 1*a*.)

Zoarium erect, much branched; stem and branches cylindrical, composed of rather firm chitinous material. *Zoœcia* disposed round the cylinder in six linear series, those of the neighbouring series alternating, large, regularly ovate, convex in front; surface smooth, round the margin a large number (15–18) of tapering acuminate spines, with an enlarged base, which bend inward over the front wall, but without meeting; orifice close to the upper extremity of the cell, bordered above and below by a thin horny rib; immediately above it a few (usually three) erect spinules; numerous large spines, springing from a kind of boss, scattered over the interspaces between the cells.

Loc. Port Phillip Heads (*J. B. Wilson*).

Range. Northern and Arctic seas, Britain, France (S.W.).

This is a very remarkable form, and for some time I was quite disposed to regard it as a distinct species; but a careful examination of the cell has convinced me that in this essential element of the structure there are no characters to separate it from the common *F. hispida* of our English coasts. The difference in habit and external appearance, striking as it is, has a parallel in many other cases, and is merely varietal.

Similar diversities in the mode of growth are of frequent occurrence within the limits of a species amongst the Cheilostomata, and in the Ctenostomatous group *Alcyonidium hirsutum* is found as a gelatinous crust and as an erect palmate expansion with many lobate branches. In the present case the zoarium seems to be firmer and less fleshy than in the crustaceous condition, and is of a rather dark horn-colour. The branching is irregular; in the largest specimen I have seen the stem divides dichotomously near the base, the secondary shoots dividing into tall flexuous branches, which bear numerous short branchlets. The branches are slightly attenuated and smooth at the base. There is always much variability in the number of the spines, and in English specimens they are often very much confined to the oral region, but they are also found surrounding the cell. In the Australian variety they are few in number and small above the orifice, but form a regular line round the margin of the cell, and bend in over the front of it.

Flustrella dichotoma, v. Suhr (sp.).
(Pl. XIV. figs. 2 *a*, 2 *b*.)

Verrucularia dichotoma, v. Suhr, Ratisbon Flora (1834), p. 725, tab. i. fig. 9, *a*, *a*.
Farciminaria dichotoma, Busk, Quart. Journ. Microscop. Sc., "Zoophytology."

Zoarium erect, much branched di- and trichotomously, the terminal branchlets generally trifid; stem and branches slender, cylindrical, composed of a transparent membranous material; attains a height of about 2 inches. *Zoœcia* arranged in six series, those of neighbouring series alternating, very regularly ovate, bounded by a strongly marked dark line, very convex; surface smooth, destitute of spines, prolonged below into a kind of peduncle; orifice placed a little way below the top of the cell, bilabiate, with a dark chitinous border. Between the rows of cells a narrow smooth interspace divided at intervals by transverse dark lines (? septa).

Loc. Port Phillip, Australia (*Kirchenpauer*); Port Phillip Heads (*J. B. Wilson*).

This form, originally described by v. Suhr as a *Fucus*, was referred by Busk to his family Farciminariidæ, and placed in the genus *Farciminaria*. Owing probably to the dried condition of his specimens the latter writer has overlooked the Ctenostomatous structure of the orifice, which agrees in all respects with that of *Flustrella*. In the characters of the zoœcium and the general habit this species approaches the

cylindrical form of *Flustrella hispida* just described, and must rank in the same genus.

The cells in the same longitudinal series are not in immediate contact, but are connected one with the other by a peduncular extension, which is bounded like the cell itself by a dark reddish-brown line. Nor are the cells in neighbouring rows united laterally, a narrow interspace lying between the series and extending throughout the length of the branch.

In the isolation of the cells this species differs from *F. hispida*. There is no true joint at the origin of the branches, but merely a constriction, and the zoœcia run on continuously.

This form and the preceding illustrate a very different phase of the genus *Flustrella* from that to which we have been accustomed, and show that it has a wide geographical range.

Suborder Cheilostomata.

Family Cellulariidæ.

Bugula, Oken.

Bugula uniserialis, n. sp. (Pl. XIII. fig. 8.)

Zoarium minute, composed of geniculate, slightly branched shoots of transparent texture and a delicate horn-colour; branches given off sparingly from about the middle of the dorsal surface of a cell. *Zoœcia* uniserial, bent alternately to opposite sides, so as to present a zigzagged appearance, each cell originating on the dorsal surface of the one beneath it, immediately below the top and directed obliquely outwards, boat-shaped, of equal width in the upper portion, slightly contracted below; aperture occupying the whole front, and closed by a transparent membrane; margin thin, running out above at each side into a sharp spinous projection; at the top of each cell a very minute articulated *avicularium*, placed just below the upper margin and usually about the middle of it, well rounded behind, with a rather long back sloping down to a well-developed beak, mounted on a rather prominent peduncle. *Oœcium* helmet-shaped, smooth and shining, placed on the side of the cell close to the top, and overhanging the orifice more or less.

Loc. Western Australia, on weed (*Miss E. Gore*).

This species is probably the minutest of its tribe (so far as known), and is very scantily branched and simple in habit.

Though the uniserial and geniculate character of the cells

confers upon it a marked individuality, it is really a very typical *Bugula*, so far as all the essential elements of structure are concerned.

Family Cellariidæ.

Cellaria (part.), Lamouroux.

Cellaria fistulosa, var. *australis*, MacGillivray.
(Pl. XIV. figs. 4, 4 *a*, 4 *b*.)

Zoarium much and irregularly branched, consisting of stout, unjointed, cylindrical stems (made up of as many as ten rows of cells), often of considerable length, tapering slightly downwards, from which similar shoots are given off without regularity on all sides, originating in a horny base, which rises in all cases from the centre of a zoœcium; the whole rooted by a mass of tubular fibres. *Zoœcia* very regularly six-sided, usually truncate above and below, contiguous in the same line; of considerable depth, the walls sloping inward and minutely pitted, slightly crenate at the top; area very small, occupying the lower half of the cell; orifice central, arched above, the lower lip carried up into a very prominent mucronate projection, rounded at the top, a small denticle on each side of it; above the orifice a large circular oœcial opening. *Avicularium* in the line of the cells, placed on a transversely oblong area, suberect; mandible very wide and shallow, arched above and straight below, directed upward.

Loc. Victoria (*MacGillivray*); Port Phillip Heads (*J. B. Wilson*).

This form is described by MacGillivray as *C. fistulosa*, var. *australis*; but the differences between it and the normal *C. fistulosa* are such as to raise a doubt whether it would not more properly be ranked as a distinct species.

I am unable to say whether the peculiar habit of growth which characterizes all the specimens I have seen is constant; but if so, it is a point of considerable importance. The jointing of the stem, by which it is divided into definite segments (or internodes) in the ordinary forms of *Cellaria*, has disappeared, and with it the regular dichotomous ramification. The shoots are continuous throughout, and the branches are given off irregularly, each of them originating from the centre of one of the zoœcia, to which it is attached by a chitinous base (Pl. XIV. fig. 4 *a*).

The large size of the cylinders is also a distinctive point, for though there is considerable variability in this respect in

C. fistulosa, it never, I believe, makes any approach to the size and stoutness of habit which we find in the present form. But the most important differences are found in the cell. The orifice is placed very low down, about the centre of it; the space above it is occupied by the opening to the oœcium, which is very large and circular in form. Round the upper part of the orifice there is a kind of border, which seems to pass downward behind it.

The lower margin is elevated into a mucronate process, which more or less conceals a considerable portion of the opening, and in each corner, between it and the side walls of the orifice, is a conspicuous white denticle. The mucronate extension of the peristome is very conspicuous when the cell is viewed in profile. In *C. fistulosa* the lower margin is all but straight, and the denticles are (so far as my experience goes) wanting. The avicularium resembles in general character that of *C. fistulosa*, but it is very much wider and almost erect and has an extremely shallow mandible; the area on which it is placed is also of a different shape.

In spirit-specimens a delicate membrane is present, which covers the whole of the front of the cell (including the ovarian opening), with the exception of the oral operculum.

EXPLANATION OF THE PLATES.

Plate XIII.

Fig. 1. *Membranipora marginella*, n. sp.
Fig. 2. *Membranipora favus*, n. sp.
Fig. 3. *Microporella violacea*, Johnston, form *plagiopora*, Busk.
Fig. 4. *Lepralia robusta*, n. sp.
Fig. 5. *Porella malleolus*, n. sp.
Fig. 6. *Smittia trispinosa*, Johnston, form *bimucronata*, n.
Figs. 7, 7 *a*. *Smittia trispinosa*, Johnston, var. i.

Plate XIV.

Fig. 1. *Flustrella hispida*, Fabr., form *cylindrica*, n. 1 *a*. Nat. size.
Figs. 2, 2 *a*. *Flustrella dichotoma*, v. Suhr (sp.): zoœcia, magnified. 2 *b*. Nat. size.
Fig. 3. *Pedicellinopsis fruticosa*, n. gen. and sp.: group of polypides. 3 *a*. Nat. size (about). 3 *b*. Two polypides. 3 *c*. Portion of tube.
Fig. 4. *Cellaria fistulosa*, var. *australis*, MacGillivray: zoœcia, magnified. 4 *a*. A single cell, showing the origin of a branch. 4 *b*. Nat. size, showing the peculiar mode of branching.